

II. Rejection of Claims 1-4 under 35 U.S.C. §102

The Examiner has rejected Claims 1-4 under 35 U.S.C. §102(a) as being anticipated by U.S. Patent No. 6,285,697 to Landwehr, *et al.* (Landwehr). Presently, independent Claims 1 and 11 include the element that the dopant barrier include at least two layers. In contrast to that asserted by the Examiner, Landwehr fails to teach such an element. The only barrier layer that Landwehr teaches is the thin barrier layer 10. However, nowhere in the teachings of Landwehr does it discuss that the thin barrier layer 10 comprises at least two layers.

Therefore, Landwehr does not disclose each and every element of the claimed invention and as such, is not an anticipating reference. Because Claims 2-4 are dependent upon Claim 1, Landwehr also cannot be an anticipating reference for Claims 2-4. Accordingly, the Applicants respectfully request the Examiner to withdraw the §102 rejection with respect to these Claims.

III. Rejection of Claims 5-6 and 8-9 under 35 U.S.C. §103

The Examiner has rejected Claims 5-6 and 8-9 under 35 U.S.C. §103(a) as being unpatentable over Landwehr in view of U.S. Patent No. 6,240,114 to Anselm, *et al.* (Anselm). As established above, Landwehr fails to teach the element that the dopant barrier includes at least two layers. Landwehr also fails to suggest such an element. Because Landwehr specifically focuses on a single barrier layer, it fails to suggest that the dopant barrier includes at least two layers, as required by the claimed invention.

Anselm fails to correct the deficiencies of Landwehr. Actually, the Examiner is asserting the Anselm reference for the sole proposition that the dopant barrier may be located in specific locations and comprise various materials. Such a teaching or suggestion is very different from the

claimed element that the dopant barrier include at least two layers. Accordingly, Anselm also fails to teach or suggest the element that the dopant barrier include at least two layers.

Thus, Landwehr, individually or in combination with Anselm, fails to teach or suggest the invention recited in independent Claims 1 and 11 and their dependent claims, when considered as a whole. Accordingly, the combination fails to establish a prima facie case of obviousness with respect to Claim 1 and 11. Claims 5-6 and 8-9 are therefore not obvious in view of Landwehr and Anselm.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 5-6 and 8-9 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

IV. Rejection of Claim 7 under 35 U.S.C. §103

The Examiner has rejected Claim 7 under 35 U.S.C. §103(a) as being unpatentable over Landwehr in view of Anselm and further in view of U.S. Patent No. 6,222,865 to Stoltz, *et al.* (Stoltz). As established above, both Landwehr and Anselm fail to teach or suggest the element that the dopant barrier includes at least two layers. Similarly, Stoltz fails to teach or suggest such an element. The Examiner is asserting the Stoltz reference for the sole proposition that the current confinement layer may comprise InP (Fe). Notwithstanding the accuracy of the Examiner's assertion, such a teaching is far from a teaching that the dopant barrier includes at least two layers. Accordingly, Stoltz also fails to teach or suggest the element that the dopant barrier include at least two layers.

Thus, Landwehr, individually or in combination with Anselm and Stoltz, fails to teach or suggest the invention recited in independent Claims 1 and 11 and their dependent claims, when considered as a whole. Accordingly, the combination fails to establish a prima facie case of obviousness with respect to Claim 1 and 11. Claim 7 is therefore not obvious in view of Landwehr, Anselm and Stoltz.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claim 7 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

V. Rejection of Claim 10 under 35 U.S.C. §103

The Examiner has rejected Claim 10 under 35 U.S.C. §103(a) as being unpatentable over Landwehr in view of U.S. Patent No. 6,011,811 to Ohlander, *et al.* (Ohlander). As established above, Landwehr fails to teach or suggest the element that the dopant barrier includes at least two layers. Similarly, Ohlander fails to teach or suggest such an element. The Examiner is asserting the Ohlander reference for the sole proposition that the layer is a semi-insulating layer. Notwithstanding the accuracy of the Examiner's assertion, such a teaching is far from a teaching that the dopant barrier includes at least two layers. Accordingly, Ohlander also fails to teach or suggest the element that the dopant barrier include at least two layers.

Thus, Landwehr, individually or in combination with Ohlander, fails to teach or suggest the invention recited in independent Claims 1 and 11 and their dependent claims, when considered as a whole. Accordingly, the combination fails to establish a prima facie case of obviousness with respect to Claim 1 and 11. Claim 10 is therefore not obvious in view of Landwehr and Ohlander.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claim 10 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

VI. Rejection of Claims 11-15 and 17-18 under 35 U.S.C. §103

The Examiner has rejected Claims 11-15 and 17-18 under 35 U.S.C. §103(a) as being unpatentable over Landwehr in view of U.S. Patent No. 5,723,872 to Seabaugh, *et al.* (Seabaugh). As established above, Landwehr fails to teach or suggest the element that the dopant barrier includes at least two layers. Similarly, Seabaugh fails to teach or suggest such an element. The Examiner is asserting the Seabaugh reference for the sole proposition of a mesa structure having a substrate. Notwithstanding the accuracy of the Examiner's assertion, such a teaching is far from a teaching that the dopant barrier includes at least two layers. Accordingly, Seabaugh also fails to teach or suggest the element that the dopant barrier include at least two layers.

Thus, Landwehr, individually or in combination with Seabaugh, fails to teach or suggest the invention recited in independent Claims 1 and 11 and their dependent claims, when considered as a whole. Accordingly, the combination fails to establish a *prima facie* case of obviousness with respect to Claim 1 and 11. Claims 12-15 and 17-18 are therefore not obvious in view of Landwehr and Seabaugh.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claim 11-15 and 17-18 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

VII. Rejection of Claim 16 under 35 U.S.C. §103

The Examiner has rejected Claim 16 under 35 U.S.C. §103(a) as being unpatentable over Landwehr in view of Seabaugh, and further in view of Anselm. As established above, each of the references Landwehr, Seabaugh, or Anselm, either individually or in combination fails to teach or suggest the invention recited in independent Claims 1 and 11 and their dependent claims, when considered as a whole. Accordingly, the combination fails to establish a prima facie case of obviousness with respect to Claim 1 and 11. Claim 16 is therefore not obvious in view of Landwehr, Seabaugh and Anselm.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claim 16 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

VIII. Rejection of Claims 19 and 20 under 35 U.S.C. §103

The Examiner has rejected Claims 19 and 20 under 35 U.S.C. §103(a) as being unpatentable over Landwehr in view of Seabaugh, and further in view of Stoltz. As established above, each of the references Landwehr, Seabaugh, or Stoltz, either individually or in combination fails to teach or suggest the invention recited in independent Claims 1 and 11 and their dependent claims, when considered as a whole. Accordingly, the combination fails to establish a prima facie case of obviousness with respect to Claim 1 and 11. Claims 19 and 20 are therefore not obvious in view of Landwehr, Seabaugh and Stoltz.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 19 and 20 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

IX. Conclusion

In view of the foregoing amendment and remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-20.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

HITT GAINES & BOISBRUN, P.C.



Greg H. Parker
Registration No. 44,995

Dated: 10-24-02

P.O. Box 832570
Richardson, Texas 75083
(972) 480-8800

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

(1) Kindly rewrite Claim 1 as follows:

a doped layer; and

a dopant barrier [having at least two layers] located between said doped layer and a layer, wherein said dopant barrier includes at least two layers and does not form [said dopant barrier not forming] a pn junction with said doped layer.

(2) Kindly rewrite Claim 11 as follows:

a mesa having a substrate, a first dopant barrier having at least two layers disposed over said substrate; and

at least one layer disposed over said first dopant barrier, said first dopant barrier not forming a p-n junction with said substrate or said at least one layer.